Vogel Paint and Wax Company
Project Management Plan for FY20
Updated July 2019 by Sandeep Mehta

Site Identification

Site Name: Vogel Paint and Wax Company
EPA ID: IAD 980630487
Region: 7
State: Iowa
City/County: Maurice / Sioux County

Site Location

Address: Vogel Paints and Wax Company has their manufacturing in nearby Orange City. The liquid and solid waste from their manufacturing plant was disposed on 2 acres of their nearby noncontiguous 80-acre property. The Vogel site is located on this noncontiguous land generally described as the W 1/2 of the NW 1/4 of Section 29, T94N, R45W, Sioux County, Iowa. The site is approximately two miles south and one mile west of Maurice, Iowa, and is accessible from a gravel road on the west side of the site. Remedial activities at the site have been concentrated in the southern half of the 80-acre property.
City, State: Maurice, Iowa

Operable Units Description

The groundwater and soil cleanup activities have not been formally labeled as operable units (OU), however the soil portion of the remedy is referred to as OU-l while the groundwater portion of the remedy is referred to as OU-2.
OU1 –Soils contaminated with VOCs, and metals
OU2 –Groundwater contaminated with VOCs

Lead:

This NPL site is State Lead by Iowa Department of Natural Resources.

Site Team

Title	Name	Contact Phone Number
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Site Description

The Vogel Paint & Wax plant in nearby Orange City, Iowa generated paint sludge, resins, solvents and other solid wastes that was disposed, in a gravel pit about 2 acres in size, at the site from 1971 to 1979. The remainder of the site was tilled for agricultural purposes. Soils in the disposal area were

contaminated with volatile organic compounds (VOCs) and metals, including chromium and lead. Groundwater is contaminated with VOCs, including benzene, toluene, ethylbenzene, and xylene (i.e., BTEX compounds) and methyl ethyl ketone (MEK). Metals associated with the waste material have also been detected in groundwater.

In. the spring of 1979, the IDNR conducted initial investigations at the site in response to concerns regarding a proposed rural water district well field about 1.5 miles southeast of the Vogel site. Investigations revealed a plume of contaminated groundwater extending about 1,000 feet south of the disposal area and evidence of VOCs floating on the water table in the lower sand and gravel aquifer.

The site was proposed as a candidate site for the National Priorities List (NPL) in October, of 1984 and became a final NPL site in June of 1986. The IDNR is the lead agency at the Vogel site.

In June of 1987 Vogel entered into a consent order with IDNR for conducting a Remedial Investigation (RI) and Feasibility Study (FS) of the site. As a part of the RI/FS, the U.S. Public Health Service Agency for Toxic Substances and Disease Registry (ATSDR) conducted a health assessment for the Vogel site. ATSDR concluded that the site does not pose an immediate public health threat. However, the potential for off-site migration of contaminants into the groundwater could lead to a future public health threat. Therefore, the 1989 ROD, and amendment in 1990 included a remedial design/remedial action (RD/RA) to address the possible risk. The selected response action addressed two affected media: (1) solid waste/soil in the disposal area, informally known as OU1 and (2) groundwater known as OU2.

The Vogel site is primarily surrounded by land used for agricultural purposes. About 3,500 people, including the towns of Maurice and Struble and the Southern Sioux County Rural Water District have groundwater sources within a four-mile radius of the Vogel site. Maurice is connected to rural water.

All residences within a mile of the site are connected to the rural water supply. Two residences are located about a quarter mile northwest and southwest of the site. These residences are served by the rural water district and no longer use private wells to supply water for domestic use. These private wells are currently being used for non-household purposes and analytical results indicate that they are not being impacted by the site. The rural water district obtains water from shallow and deep wells located approximately a mile and a half southeast of the site.

Current Site Conditions:

Excavation and treatment of soils OU1 began in October of 1991. An August 1994 preliminary closeout report certified that the soils remediation was operational and functional. Soil remedial actions involved: excavation of wastes from the waste disposal cells; separation of solid and ' liquid waste for off-site disposal, as appropriate; treatment of soils by land farming with bioremediation; chemical stabilization, and special placement of metals- contaminated soils; and backfilling the excavation with treated soils. Soil remediation was completed in May of 1999. A Remedial Action Report certifying the completion of soil remediation was issued in September of 2000.

As groundwater remedial activities progressed, a large volume of free product was found in subsurface soils in an area located to the south of the original disposal area. To address this source of groundwater contamination, excavation of an area about 500 ft. by 200 ft. by 35 ft. deep was conducted between October 2000 and January of 2001, and bioventing remediation was implemented. Construction of the groundwater remediation system began in the spring of 1991. Normal operation of the groundwater remediation system started in the spring of 1992. A Groundwater Remedial Action

Report was issued in October of 1994, which certified the groundwater remediation system as operational and functional. Discharge of treated water flowed overland to an infiltration basin located upgradient of the original disposal cell. The system was not operated during the winter months as seasonal shutdown was necessary due to freezing problems.

The October 2000 ESD also clarified the criteria to determine if, and when, discontinuation of active groundwater ·remediation was warranted. The criteria included no exceedance of groundwater cleanup standards at the property boundaries, no expansion of groundwater contamination as demonstrated by stable or decreasing groundwater contaminant levels throughout the site, and no other evidence that would suggest the potential for migration of groundwater from the site at levels exceeding the ROD cleanup standards.

Following a reduction in contaminant levels after the soil remedial action in 2000, IDNR allowed the groundwater treatment system to be shutoff in 2001. In July of 2003, data from additional monitoring wells revealed contaminated groundwater had migrated to the southern site boundary. In accordance with the 2003 consent order, the groundwater remedial system was reactivated in August 2003. Additional monitoring wells were installed at the southern boundary and in off-site areas to the south to better define the groundwater plume and determine the need for additional remedial action. Operation of the groundwater remediation system appeared to improve off-site groundwater conditions and use of the air stripper tower was again suspended after the seasonal shut-down in December of 2004. However, an area of contamination exceeding the ARARs remained on the southern end of the property. The pump and treat system remained inactive.

In 2007, Vogel conducted a study to evaluate potential measures to enhance groundwater remediation on-site and prevent further off-site impacts. In July of 2007, an irrigation / phytoremediation pilot study was initiated that included the planting of 1-acre of trees over the area that was excavated in late 2000. In 2008, an additional 2.5-acres of trees were planted, expanding the phytoremediation system over the original disposal area where the stabilized metals contaminated soils were placed. This phytoremediation pilot study has been abandoned due to its ineffectiveness in 2016. Current operation and maintenance at the site includes an ongoing groundwater monitoring program and free product recovery by bailing monitoring well MW-4R.

The state registry of Hazardous Waste or Hazardous Substance Disposal Sites was the form of institutional control prescribed in the ROD and was implemented in 1984. Listing on the state registry requires that sale or significant change in use of the property must be approved by the IDNR. On-site use of groundwater is prevented by listing on the state registry of Hazardous Waste or Hazardous Substance Disposal Sites. The 2000 ESD indicated that IDNR would accept an environmental protection easement pursuant to Iowa Code 455H.206 as an institutional control that could be used in addition to, or in lieu of, the state registry listing. Environmental protection easements have since been replaced by uniform environmental covenants pursuant to Iowa Code 4551 as the preferred instrument for placing activity and use limitations on properties. The EPA and IDNR are currently working with the property owner to establish an environmental covenant on the property in accordance with Iowa Code 4551.

The current Five-Year Review report is in the process of evaluating the site operations, the remedy implementation, and identify any issues/findings. Based on the review of last 2018 Annual Report submitted, the current groundwater recovery and treatment system reduces the migration of contaminants from the source area. However, detections of ethylbenzene in two boundary wells show

that contamination above cleanup levels exists outside of the property boundary. The EPA is working with IDNR to identify additional efforts to reduce this offsite migration and the plume footprint. These efforts would also address removal of the remaining source area contaminants from the groundwater.

Site Chronology

EVENT	DATE
Site discovery by the state following concerns expressed by nearby residents about rural water wells in the vicinity of the waste disposal area.	Spring 1979
Site proposed for the National Priorities List (NPL).	10/15/1984
Final listing on the NPL.	06/10/1986
An Iowa DNR Consent Order (No. 87-SW-16) was signed by the IDNR and potentially responsible party (i.e., Vogel) requiring completion of a remedial investigation/feasibility study (RI/FS).	06/08/1987
RI/FS completed and Record of Decision (ROD) issued.	09/20/1989
The Iowa DNR RI/FS Consent Order was amended (Iowa DNR Amended Consent Order No. 90-HC-10) to implement the remedial design and remedial action as prescribed in the ROD.	07/23/1990
Groundwater remediation was begun with start-up of groundwater recovery and treatment system.	Spring 1991
Soil remediation was begun with treatment of first batch of contaminated soils in soil treatment cell.	Fall 1991
Remedial Action Report for Groundwater indicating the groundwater actions to be operational and functional.	10/28/1992
An Explanation of Significant Differences (ESD) was issued that increased the scope of cleanup actions with more recovery wells, a larger estimate on free product removal, a larger excavation and treatment volume of soil, higher maximum concentration of contaminants in soils based on testing results, use of an open system for bioremediation of contaminated soils, additional soil treatment beds, as well as removal of Iowa proposed Air Toxics Rules as an ARAR and removal of a carbon adsorption unit to treat the air discharge from the air stripper design.	07/20/1994
Preliminary Close-Out Report.	08/19/1994
First Five-Year Review completed.	10/1/1998
Remedial Action Report for Soil Remediation Operable Unit indicating completion of soil remediation activities.	9/28/2000
A second ESD was issued which prescribed additional efforts to enhance free product removal to expedite groundwater remediation. The ESD described the efforts which included excavation and repositioning of contaminated soil, with subsequent operation of an SVE/bioventing system. The ESD also clarified the criteria to determine if, and when, discontinuation of active groundwater remediation was warranted.	10/2000
Enhanced free-product excavation, repositioning of contaminated soil, and installation of bioventing pipes completed.	01/2001
An Iowa DNR Consent Order (No. 2003-HC-02) between the IDNR and Vogel replaced prior Consent Order No. 90-HC-10 and clarified remaining actions necessary to complete remedial measures prescribed in the ROD and ESDs.	05/23/2003

In accordance with the 2003 Consent Order, groundwater remediation system was placed in standby mode (i.e., not reactivated in spring 2003 following winter shutdown) pending groundwater monitoring results.	Spring 2003
Off-site groundwater contamination discovered and, in accordance with the 2003 Consent Order, the groundwater remediation system was re-activated.	08/2003
Second Five-Year Review completed.	09/24/2004
Normal seasonal shutdown of pumping to the air stripping tower.	12/2004
With stable or declining concentrations in the southern monitoring wells, pumping to the air stripping tower was not reactivated in spring 2005 following winter shutdown.	Spring 2005
Phytoremediation/irrigation pilot study approved by IDNR and initiated in a 1-acre area.	6/2007
Phytoremediation area expanded to include an additional 2.5 acres north of the 2007 planting, including over the original disposal area where metals contaminated soils were placed.	5/2008 -
Third Five-Year Review completed.	09/24/2009
Fourth Five-Year Review completed.	09/23/2014
Due to increasing concentrations in off-property wells, a shallow tray air stripper was installed and began operation to replace the original air stripper which could not be re-activated	04/2016
Sampling and reporting in the Annual Report of bioaccumulation of Site contaminants within the phytoremediation trees.	06/2017
Draft Pilot Study Work Plan for Enhancement of Groundwater Remediation developed by Vogel and submitted to the EPA and IDNR for review.	05/2019
Pilot Study Work Plan and Northside Work Plan implementation start	06/2019
Fifth Five-Year Review expected to be completed.	09/2019

Upcoming Schedule and Targets

Target	OU	Planned Date
Fifth Five-Year Review report signed		2019/4
Pilot Study Workplan completed		2019/6
Northside Workplan completed		6/2019
Pilot Study and Northside Workplan starts		6/2019

Issues

The following issues that are identified have been incorporated into the Pilot Study Work Plan and Northside Work Plan. These plans have been reviewed and approved by IDNR and the EPA, and are under implementation at the site.

1. Groundwater has migrated offsite: The existing groundwater treatment plant has been re-started.
2. Current groundwater monitoring program is not providing data to completely and accurately evaluate the levels of contamination and transport of metals from the metal soils disposal area: The Groundwater Monitoring Plan shall be updated to include collection of groundwater metals samples within the metal soils disposal area, collection of groundwater metals samples near the creek, collection of additional groundwater samples in the excavated soils areas, and changing sampling procedures to a more current sampling method.
3. Assess whether groundwater contamination is adversely impacting the intermittent stream that

flows through the northern portion of the site: The Groundwater Monitoring Plan shall be updated to include groundwater/surface water interaction, surface water sampling, and sediment sampling. These sampling results will enable determine if the creek is being impacted by the site contaminants.

4. Property deed does not reference the status of the site on the Iowa State Registry for Hazardous Waste or Hazardous Substance Disposal Sites: The property deed needs to include reference to the site being on the Iowa State Registry for Hazardous Waste or Hazardous Substance Disposal Sites, and also be in accordance with Iowa's UECA. However, the current Institutional Controls meet the ROD and ESD requirements.

GPRA Measures

Human Exposure Under Control

Achieved 4/1/2011.

Groundwater Migration Under Control

4/1/2021. The Comprehensive Pilot Study Work Plan provides some timeline to achieve it.

Remedial Action Complete

RA achieved for groundwater 10/28/1992. RA achieved for soil 9/28/2000.

Construction Complete

PCOR completed 8/19/1994.

Site-wide Ready for Anticipated Use

The PRP has prepared Pilot Study Work Plan and Northside Work Plan to address issues identified in the fourth Five-Year Review report. The outcome will enable getting the site to SWRAU.

Resource/Funding

Action	OU	Ongoing/Planned	Funding
EPA oversight of PRP performing groundwater sampling	OU1	Ongoing	
EPA review and evaluation of PRP reports	OU1	Planned	
IDNR oversight funding	Site	Ongoing/Planned	

Community/Congressional/Outside Interests

None.

Appendix A – Detailed Site Schedule

Appendix B – Site Figures